

## Claims

We claim:

1. A method for maintaining the power delivered by a motor including at least one phase coil, the method comprising the steps of: sensing a speed of said motor; and

5

varying the inductance of said phase coil based on said sensed speed.

2. The method of claim 1, wherein the step of varying the inductance of said phase coil includes the step of varying the number of turns of said phase coil from a first 10 number of turns to a second number of turns.

3. The method of claim 2 wherein the step of varying the inductance of said phase coil is carried out by switching the number of turns of said phase coil from a first value to a second value.

15

4. The method of claim 3, wherein the switching is carried out when said sensed speed reaches a reference speed.

5. The method of claim 3 wherein the switching is carried out when said sensed 20 speed is about the speed at which saturation of a core of a phase coil of said motor occurs.

6. The method of claim 4 wherein said reference speed is the motor speed at which the motor force corresponding to a first number of turns ( $T_1$ ) of said phase coil is about 25 the same as the motor force corresponding to a second number of turns ( $T_2$ ) of said phase coil.

7. The method of claim 1 further including a step of compensating said motor for said varying inductance of said phase coil.

8. The method of claim 1 wherein said motor is a variable reluctance motor.
  9. The method of claim 8 wherein said variable reluctance motor is a linear motor.
- 5
10. The method of claim 8 wherein said variable reluctance motor is a rotary motor.
  11. In a motor including at least one phase coil, a system for maintaining motor power comprising:
    - 10 a sensor coupled to said motor, said sensor providing a feedback signal representative of a speed of said motor;
    - a comparing circuit for comparison of said feedback signal to a reference signal and for providing a switching signal based on the results of said comparison;
    - a switch coupled to said comparing circuit and responsive to said switching signal such that the number of turns of said phase coil is switched from a first value to a second value depending on the value of said feedback signal.
  12. A motor system including at least one phase coil having a first number of turns, said system comprising:
    - 20 a motor speed sensor coupled to said motor for sensing a speed of said motor;
    - a switch coupled to said phase coil of said motor;
    - a driving circuit coupled to said motor speed sensor and to said switch such that said switch switches the number of turns of said phase coil from said first number to a second number when said speed of said motor reaches a reference value.
  - 25 13. The motor of claim 12 wherein said motor is a variable reluctance motor.